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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/646,525

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William Daniel Meisburger

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EXAMINER

THOMAS, BRANDI N

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/646,525

Applicant(s)

MEISBURGER, WILLIAM DANIEL

Examiner

Brandi N Thomas

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-44 and 63-69 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 23-39, 41, 43, and 44 is/are rejected.
- 7) ☒ Claim(s) 40, 42 and 63-69 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/8, 5/17, 9/23/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Information Disclosure Statement

1. Acknowledgement is made of receipt of Information Disclosure Statement(s) (PTO-1449) filed 1/8/04, 5/17/04, and 9/23/04. An initialed copy is attached to this Office Action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 23-39, 41, 43, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Jain et al. (6312134 B1).

Regarding claim 23, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, comprising: a spatial light modulator (3), said spatial light modulator (3) comprising at least one area array of individually switchable elements (array of micromirrors, individual mirrors tilt in different directions) (Col. 7, lines 12-16); a light source (1) configured to illuminate said spatial light modulator (3) (col. 7, lines 11-12); imaging optics (4) configured to project a blurred image of said spatial light modulator (3) on said substrate (5) (col. 7, lines 61-67, col. 8, lines 1-2, and col. 8, lines 30-34); and an image movement mechanism for moving said image across the surface of said substrate (5) (col. 7, lines 30-34 and 66).

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Regarding claim 24, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said spatial light modulator (3) comprises at least one digital micro-mirror device (col. 7, line 13).

Regarding claim 25, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said light source (1) is a continuous light source (col. 8, lines 18-21).

Regarding claim 26, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said light source (1) is an arc lamp (col. 2, line 35 and col. 8, lines 23-25).

Regarding claim 27, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said light source (1) is a laser (col. 7, line 46).

Regarding claim 28, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said laser is a continuous laser (col. 8, lines 18-21).

Regarding claim 29, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said laser is a quasi-continuous laser (col. 8, lines 18-21).

Regarding claim 30, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said imaging optics (4) is a telecentric projection lens system (col. 7, lines 16-18).

Regarding claim 31, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said imaging optics (4) is configured to form a defocused image of said spatial light modulator (3) (col. 7, lines 19-23).

Regarding claim 32, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said imaging optics (4) that blurs said image of said spatial light modulator (3) (col. 7, lines 61-67, col. 8, lines 1-2, and col. 8, lines 30-34) but does not specifically disclose the

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use of a diffuser. However, it is inherent to use a diffuser this being reasonably based upon a diffuser scatters or disperses light emitted from a source.

Regarding claim 33, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said imaging optics (4) has a numerical aperture (NA) adjusted such that said image of said spatial light modulator (3) is blurred (col. 8, lines 31-8 and 58-67 and col. 9, lines 1-2).

Regarding claim 34, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said imaging optics (4) comprises a microlens array configured to blur said image of said spatial light modulator (3) (col. 10, line 33).

Regarding claim 35, Jain et al. discloses, in figure 4, a lithographic tool for patterning a substrate, wherein said imaging optics (4) comprises a single projection lens system (col. 7, lines 16-20).

Regarding claim 36, Jain et al. discloses, in figure 4, a lithographic tool for patterning a substrate, wherein said imaging optics (4) comprises a projection lens system, but does not specifically disclose a projection lens system for each said area array. However, it is inherent to include a system for each array this being reasonably based upon each array reflect an image onto the spatial light modulator.

Regarding claim 37, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said image movement mechanism comprises a stage (6) on which said substrate (5) is carried (col. 7, line 18).

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Regarding claim 38, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said image movement mechanism comprises a stage (6) on which said spatial light modulator (3) is carried (col. 7, lines 13-18).

Regarding claim 39, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, wherein said imaging optics (4) is carried on said stage (6).

Regarding claim 41, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, further comprising a control computer (7) configured to control switching said elements of said spatial light modulator while said image is moving across the surface of said substrate (5) (col. 7, lines 24-30).

Regarding claims 43 and 44, Jain et al. discloses, in figure 1, a lithographic tool for patterning a substrate, comprising: a spatial light modulator (3), said spatial light modulator (3) comprising a multiplicity of area arrays of individually switchable elements (array of micromirrors, individual mirrors tilt in different directions) (Col. 7, lines 12-16); a light source (1) configured to illuminate said spatial light modulator (3) (col. 7, lines 11-12); a multiplicity of projection lens systems (4) configured to project a blurred image of said spatial light modulator (3) on said substrate (5) (col. 7, lines 61-67, col. 8, lines 1-2, and col. 8, lines 30-34); and an image movement mechanism for moving said image across the surface of said substrate (5); wherein the number of said area arrays is greater than the number of said projection lens systems (col. 7, lines 16-18).

Allowable Subject Matter

4. Claims 40, 42, and 63-69 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 40 and 63-66, wherein the claimed invention comprises wherein said image movement mechanism comprises rotatable, spaced apart, axially parallel film drums, said substrate being wrapped around and tensioned between said drums; a light switching mechanism positioned on a light path, said light path going from said light source to said spatial light modulator and ending at said substrate, said light switching mechanism being configured to control passage of light along said light path; and a second spatial light modulator positioned on a light path, said light path going from said light source to said first spatial light modulator and ending at said substrate, said second spatial light modulator being configured to control passage of light along said light path, as claimed.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ausschnitt et al. (6130750) discloses a metrology apparatus for determining bias or overlay error in a substrate formed by a lithographic process.

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Price (US 2003/0184730 A1) discloses methods and apparatuses for enhancing operator independent image cytometry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BNT

BNT
November 23, 2004


RICKY MACK
PRIMARY EXAMINER